

Canine Mast Cell Tumors

Phyllis C Glawe DVM MS
Diplomate ACVIM, Oncology

What is a Mast Cell Tumor?

Mast Cell Tumors (MCTs) are one of the most common malignant skin tumors in dogs. Mast cells are the cells that normally are associated with allergy responses, such as the swelling and redness that occur with insect stings. In dogs, mast cell tumors typically are located in the skin of the trunk and peripheral limbs. The masses are typically solitary, reddened in color, hairless and occur in middle age/older dogs. They can be itchy and occasionally can present with ulceration on the skin surface. These tumors are malignant due to their tendency to invade deeply into the surrounding tissue and occasionally spread to other organs, such as the lymph nodes, liver and spleen. ***One of the more interesting features of this cancer is its behavior: MCTs may grow and shrink rapidly*** due to inflammation caused by mast cells occasional release of histamine and other vasoactive chemicals.

How is the Diagnosis Made?

The clinical appearance of MCTs can vary, however the tumors are typically relatively straightforward to diagnose with a fine needle aspiration cytology. A biopsy of tissue can also be performed to obtain the diagnosis, if cytology is not definitive. Special stains can be applied to the tissue biopsy sample to identify the cancer cells if necessary.

What is meant by “Grade of the Mast cell tumor” and why is it important?

“Grade” of the mast cell tumor refers to characteristics of the cancer cells noted within the tissue biopsy specimen. These characteristics reflect the aggressiveness of the tumor and are highly correlated with success of treatment and survival of the patient. To obtain a grade, a tissue biopsy must be done. The Grade scale extends from “I” to “III”. More recently, there have been additional designations added to grade descriptions, such as “High grade II”, to indicate a tumor’s behavior may be transitioning to a more aggressive variant.

What is “Staging” and why is this also important for MCT patients?

“Staging” is the diagnostic testing performed to determine the extent of mast cell cancer in the rest of the patient’s body. Such tests, such as blood and urine analysis, radiographs and ultrasound are done to determine how the patient may be affected in other distant areas by this malignancy. Cytology samples of the lymph nodes, liver and spleen are usually recommended to ascertain if mast cell cancer is present in these areas. In select patients, bone marrow cytology is performed. Again, results of staging tests are strongly correlative to the success of overall therapy and survival of the patient.

Prognostic Factors

Prognostic factors are the characteristics of the patient, its tumor and the results of diagnostic testing that determine how each patient will fare in the long term. Factors that are important for mast cell cancer include: histologic grade of the tumor and completeness of surgical excision; staging results; location of the original tumor (inguinal and perianal tumors have a poorer prognosis); growth rate of the tumor (rapid growth of greater than 1 cm/week is

ominous) and breed of the patient (brachycephalic breeds such as pugs and boxers tend to have less aggressive MCTs).

Treatment of MCTs

Control of canine MCTs is primarily achieved through surgical removal of the tumor. Wide margins of normal tissue around the tumor are essential to assure a complete removal. ***This assessment of margins is made by the pathologist on the tissue sample following surgery.*** If the margins are inadequate, then another surgery may be recommended, or if not feasible, local radiation therapy can be utilized to prevent cancer cells from regrowing in that area. If the grade of the tumor is aggressive, chemotherapy (medical therapy with injections and/or oral medication) is strongly recommended to delay both local recurrence and spread of the cancer to other regions.

If staging reveals that the tumor has spread to other organs, or that there are other mast cell tumors elsewhere, surgery alone will not be helpful to address this disease. Systemic therapy with chemotherapy is typically recommended to control the progression of the mast cell cancer into other areas of the body. It is important to note in such cases that the combination of therapies is an attempt to control the cancer and ensure a good quality of life for the patient for as long as possible. Cure of metastatic mast cell cancer is not anticipated.

Palliative Care for Mast Cell tumors

“Palliative” care means providing comfort to patients with advanced or incurable disease. With canine MCT patients, palliative care can be achieved through the use of several oral medications. Steroid therapy, antihistamine therapy and gastric acid reducing drugs (such as pepcid AC) can be very helpful to reduce the severity of clinical symptoms and discomfort in patients. If a pet has an open draining ulcer, antibiotic therapy and bandaging the area can be utilized. Pain medications can be utilized for patients that are having difficulty with mobility or resting comfortably.

On The Horizon

Mast cell cancer in dogs has been an ongoing focus of research in veterinary oncology. Identification of more aggressive variants of the disease with newer diagnostic tests (eg “cKit” analysis) has been investigated to help with therapy decision-making. Additionally, there are several new therapies available for dogs with mast cell disease. “Tyrosine kinase inhibitor” (TKI) therapy is a new approach that utilizes oral drugs (eg Palladia, Kinavet) to target and block specific molecular sites on cancer cell surfaces. This interference with cancer cell processes can delay the progression and growth of MCT. Efficacy and side effects are issues that must be discussed prior to initiation of treatment, however the results have been encouraging.

What about my dog with Mast Cell Tumor?

MCT is a serious diagnosis in a companion animal. The prognosis and treatment are dependent upon several factors as discussed above. The specific appropriate diagnostic testing as well as the possible therapy options will be discussed in detail with you. Although the guidelines for treatment of this cancer are well described in the literature, not every patient is the same. Our goal is to help with your understanding of what options are the best fit for your companion to ensure a good quality of life.